University of Southampton

GIVING REPORT 2022

SOUTHAMPTON TOGETHER

WELCOME FROM OUR PRESIDENT AND VICE-CHANCELLOR

It gives me great pleasure to present this 2022 edition of our annual giving report, showcasing some of the remarkable things that we have achieved as a result of your support over the last year.

2022 is a banner year for Southampton, as we celebrate 70 years since Queen Elizabeth II awarded us our Royal Charter, the event that signalled the formal creation of the University of Southampton. As we look back across our history, it is so clear that giving, in all its forms, has been a key part of our success and growth. In this report we reflect on some of the acts of generosity that have helped to shape the University into a powerhouse of research, education and enterprise, and celebrate the progress we are making towards our ambition to be an even greater force for positive change.

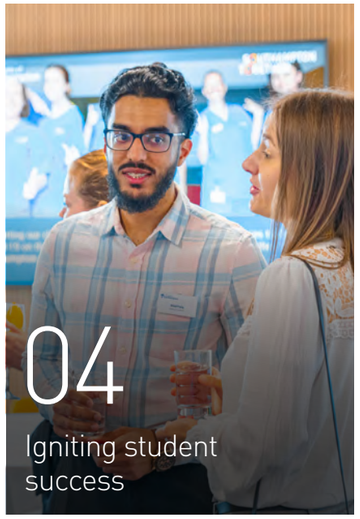
This report shows just some of the ways in which you, as part of our community of donors and volunteers, have helped us to change the world for the better: from developing new treatments for cancer, to training the next generation of scientists and engineers, to providing a helping hand to our most vulnerable students.

I extend my most sincere thanks to you and all of our community, for giving your time, money and expertise to the University. I want to make it clear that your support is hugely appreciated and that it has allowed us to become the really high quality institution we are today: together we are transforming lives.

With thanks and warmest wishes,

Professor Mark E. Smith CBE
President and Vice-Chancellor

CONTENTS



IGNITING STUDENT SUCCESS

This year has seen a step change in the support that the University is able to offer students enrolled on the Ignite Programme, a widening participation initiative largely funded by donations from alumni and supporters.

The University is dedicated to improving access to the world-class education that is offered at Southampton, and the Ignite Programme is a key part of our plan to increase equality of opportunity. The programme's holistic approach to student support covers financial, educational, social and careers aspects of the university experience, meaning that these students are able to reach their full potential and take advantage of everything Southampton has to offer.

In 2022, the University has managed to increase the number and effectiveness of the careers and employability workshops offered to students on the programme, secure internships and work experience for 76% of Ignite students and expand the support available for students before and during their studies at Southampton.

One of the most successful new additions to the programme has been the introduction of pre-internship support events to prepare students to enter the work environment, and internship reflection sessions to help them translate the experience they gain on placement into tangible examples for CV writing and future job interviews.

Bilal and Lesley are just two of the students from this year's Ignite cohort, who have achieved remarkable things with the support of the programme.

The Ignite programme's **holistic approach to student support** covers financial, educational, social and careers aspects of the university experience.

WHY I GIVE

"I support the University of Southampton because I'm grateful for what I learned there. I use this knowledge daily. I also want to help students from all backgrounds benefit as I did."

Professor Thomas Haine

Lesley:

Lesley is a Computer Science student in her second year. She has just secured an internship at AmEx for this summer.

"During sixth form, I became very stressed about A Levels. Going to university is so important in securing a good career and a good life. My parents worked in low wage jobs and didn't want the same for me. I worked hard but the stress affected me mentally and physically. I was able to get better, but I still feel that pressure. My main motivation is to be financially free; I don't want the fact that I don't have enough money to limit what I do.

When I was younger, there was a lot of things I couldn't do because of my financial situation: I was not able to go on school trips because my family couldn't afford it. There were many things I wanted to learn, hobbies I wanted to try, that I didn't pursue because I felt guilty spending money.

The Ignite Programme definitely helped me, both financially and with building a support network. The workshops helped me to develop my skills and get a programming internship this coming summer.

I'm really appreciative of the whole programme. I just want to say a huge 'thank you', because all these opportunities that I've been able to have, have shaped my whole experience of university."

Bilal:

Bilal is a mature student, studying Medicine. Having moved to the UK six years ago, Bilal's path to university was longer and more challenging than many.

"Southampton's support system is next level. The workshops where alumni have come in to talk about their experiences in medicine have been really inspiring. They have also motivated me to do my best academically and beyond the walls of the University.

The bursary really reduces my stress about finances and allows me to focus on my studies and making the most of the university experience. I can achieve my full potential because I don't have to be worried about money. For students like me who are from underrepresented backgrounds, it allows us to compete on a level playing field with other students.

"For students like me who are from underrepresented backgrounds, it allows us to compete on a level playing field with other students."

Bilal Faiq Al Hameed
1st year MBBS and Medical Sciences

For those of us who don't start out with all the tools to succeed, but still want to go to university and still want to get good degrees, the Ignite programme is life-changing. The workshops develop the skills that we don't have and help us to gain a better understanding so that each of us can ultimately reach our best."

ENHANCING ALLERGY CLINICAL CARE

"The MSc offered a great combination of technical biochemical science and practical, evidence-based advice, which immediately improved my ability to manage complex allergic disease."

Rob Winter, MSc graduate

When Rob Winter received a bursary from the Natasha Allergy Research Foundation to undertake the MSc Allergy programme at the University of Southampton, he knew it would enhance his clinical expertise and allow him to deliver better care and advise to his patients and their families.

Little did he know, it would also enable him to diagnose his own eight-month-old son with a rare allergic disease.

Rob, who is a Paediatrician at Bristol Royal Hospital for Children, completed the MSc in July 2021.

It was during the course, when he was at home looking after his son Adam that he gave him a small amount of peanut butter. Adam enjoyed it without any problems and so it was on the menu again a few weeks later. Later that evening, Adam spent several hours vomiting, which Rob put down to gastroenteritis, and he was better by the morning. Several more weeks passed and Adam had peanut butter for the third time. But this time, three hours after eating it, Adam started violently vomiting. He became incredibly dehydrated and went limp.

While experiencing the immediate terror that any parent would, Rob also recognised the signs that Adam could be experiencing food protein-induced enterocolitis syndrome, a rare delayed allergic reaction to food that affects the gastrointestinal system.

"He was barely responsive and looked awful," Rob explained. "It was terrifying to see your child go through something like that. We took him to the children's ward – I thought it was unlikely that he had this condition. What are the chances that I've studied it and then my child has it? And so, I asked for a separate allergy team to investigate – but they had the same diagnosis."

Fewer than 1 in 10,000 children in England will experience food protein-induced enterocolitis syndrome and almost all children grow out of it. Diagnosis is difficult as children react to the food some three or four hours after being exposed to it – just like Adam. Occurrences can happen three or four times before a diagnosis takes place following multiple trips to hospital and various tests.

Rob continued: "The condition is very rare – we may see two in a year at the hospital – but luckily we were able to see it as soon as it happened and our diagnosis was swift, meaning Adam doesn't have to undergo lots of tests and we have a clear pathway to reintroduce peanuts in three to four years.

"This is the advantage of the MSc course – it gives you a better understanding of allergy, whether it's asthma or food allergy, to deliver better advice to parents and care to their children. I'm so grateful that my own son was able to benefit too."

It was the University's international reputation as a leader in allergy and the opportunity for distance learning that attracted Rob to Southampton. But it was the Natasha Allergy Research Foundation bursary that meant he could undertake the course. Rob had to self-fund the course and with a young son and his wife pregnant, Rob says the bursary made a massive difference.

"I don't think I would've been able to fund it all myself," Rob said. "And without the course, I wouldn't have been able to diagnose Adam.

"I am a paediatrician developing a special interest in allergy but hadn't seen many patients when I began the course. Undertaking the MSc has made real improvements to my patients' outcomes and has also helped me prevent allergic disease; when parents have been concerned about possible allergy in their children, I have been able to support them with early food introductions (or re-introductions). This has enabled their children to develop tolerance to a range of foods, preventing allergies that may have lasted years or in some cases even a lifetime."

Since 2020, the Natasha Allergy Research Foundation has kindly donated £150,000 for MSc Bursaries and £450,000 for PhD bursaries, which has supported our students to develop their skills in caring for patients living with allergies and improving their clinical service.

"For both UK and international students, having access to bursaries can make the difference between them being able to afford to study, and not."
Professor Judith Holloway, MSc Allergy Lead.

Professor Judith Holloway, MSc Allergy Lead, said: "We are incredibly grateful to the Natasha Allergy Research Foundation for their support. Bursaries are so important, helping our mature students access education later in life as family and financial commitments grow. Particularly in the field of allergy, bursaries help make our allergy education accessible to doctors, nurses and dietitians who use what they learn with us to improve their clinical practice, pass their knowledge on to their colleagues and treat their patients better,"

Providing hope to people with food allergies

Not only is The Natasha Allergy Research Foundation supporting our students, but they are helping us further our allergy research.

The Foundation has made an incredibly generous gift of £2.2 million to fund a new three-year oral immunotherapy (OIT) trial, which aims to prove that commonly available peanut and milk products taken under medical supervision can be used as a treatment for people living with food allergies.

If successful, participants with persistent food allergy won't have to avoid popular foods which might contain small amounts of allergens due to production, and be able to eat popular foods like cakes, curries and pizza with their friends.

The first "Natasha Clinical Trial" is led by Professor Hasan Arshad at the University of Southampton and will use "everyday foods" instead of expensive pharmaceuticals for OIT.

We are very proud to be leading this groundbreaking study that could open up potential life-long treatment for hundreds of thousands of people living with allergies across the UK and around the world.

IMPROVING TREATMENTS FOR CANCER

Despite the challenges of the global COVID-19 pandemic, our pioneering researchers at the Centre for Cancer Immunology have continued their fight to improve treatments for cancer. This past year has seen many new developments from our specialists within the Centre.

One of our teams has opened the door for a potential new class of treatments by enhancing the natural ability of therapeutic antibodies to attack blood cancer cells using part of the human immune system known as the complement cascade.

Another team has revealed further insight into the mechanisms of immune checkpoint blocking antibodies, which could lead to better outcomes for patients.

RiVA's results

A number of the Centre's successes this year have been led by Dr Sean Lim, Associate Professor in haematological cancers. Dr Lim has been at the Centre since its official opening in 2018, and has seen promising results from her latest trial RiVA, which was also managed by the Cancer Research UK Southampton Clinical Trials Unit, based at the Centre.

The trial showed that combining the immunotherapies rituximab with varlilumab could help to tackle treatment resistance in patients with B cell lymphoma.

Rituximab works by sticking to the surface of cancerous lymphoma cells and marking them out for destruction by the immune system. It has been shown to be very effective for people with lymphoma, but over time, some people's cancer will become resistant to the treatment.

The RiVA trial showed that combining rituximab with varlilumab, which increases the number of cancer-fighting immune cells in the patient's body, may be able to counteract this resistance.

"While there have been positive strides forward in immunotherapy development, we know that not everyone responds favourably to this treatment," Dr Lim said.

"But these results give us important insight into what might enable more people with B cell lymphoma to have an improved immune response which could lead to better outcomes."

COVID vaccine development

The development of the COVID-19 vaccine was received with joy and pride by many across society, but for patients with lymphoid malignancies who have weakened immune systems as a result of their disease or treatment, questions were understandably asked about whether they would be able to receive a vaccine or not.

The PROSECO study, led by Dr Lim, evaluated immune responses in patients with lymphoid cancers to COVID-19 vaccines and found that the weakened immune systems of blood cancer patients can improve after they receive a third COVID-19 vaccination.

Dr Lim said: "The pandemic was incredibly hard on us all, but despite the lifting of restrictions, a cloud continued to hang over immunosuppressed patients, who may not develop protective immune responses after vaccination.

"Our research shows that roughly half of patients with lymphoid cancers have COVID-19 antibodies after vaccination. Those who do not have antibodies may still have protective T-cell responses. This study has informed us who is likely to need re-vaccination and early treatment with anti-virals and COVID-19 monoclonal antibodies to provide further protection.

There was a wonderful response from the University to fight COVID-19 on many different fronts. Our team was very proud to play a part in that work."

Research from Professor Peter Johnson provided further insight into the impact COVID-19 vaccines can have in people with blood cancers.

Professor Johnson took part in the UK Coronavirus Cancer Evaluation Project, the world's largest analysis of the effect of COVID-19 vaccination on people with cancer.

It revealed a more rapid waning of COVID-19 vaccine effectiveness in cancer patients, particularly those with lymphoma and leukaemia, compared to the general population by three to six months.

"This research highlights the importance of vaccination booster programmes and rapid access to COVID-19 treatments for people undergoing cancer treatments," Professor Johnson said.

Find out more about the Centre for Cancer Immunology:
www.southampton.ac.uk/cancerimmunology

Supporting ground-breaking innovations

Every year, your kind donations continue to support our amazing researchers through the Cancer Immunology Fund. This year has been no exception and we are so grateful for every donation we receive.

This year we have received a generous donation from the Bernard Sunley Foundation, which will fund four different projects, led by four of our early career researchers.

This funding provides important support to researchers who have early concept ideas that need further investigation before more substantive funding from external sources can be secured.

With this kind of support from passionate donors like you, early career researchers who have exciting and innovative ideas can push the boundaries of cancer research in a supportive environment.

The Fund was also the cause chosen by many of the 70 members of staff, students and alumni who ran this year's Southampton APB event in celebration of the University's 70th anniversary. Nearly £2,000 was raised and we would like to thank each person who donated. Your generosity is making ground-breaking and life-changing research possible.

Dr Sean Lim

Dr Huw Jones, a lecturer in Film Studies at the University, was one of several runners who completed the ABP Southampton Half Marathon in April in support of the Cancer Immunology Fund.

Huw is a cancer survivor himself and was treated by experts from the University's cancer sciences team.

"Prior to coming to Southampton I was displaying symptoms of an illness – I was coughing a lot and I'd been to hospital but seen no diagnosis as a result. The day that I started working at Southampton, I got a referral to the General Hospital to meet an oncologist called Professor Peter Johnson. He could immediately see that I was displaying the signs of Hodgkin's lymphoma, a type of blood cancer, and then biopsies confirmed his diagnosis.

I feel very lucky that I ended up in the one place in the UK where they have these amazing experts in cancer treatment and lymphoma. I got the best possible care I could possibly ask for by ending up in Southampton.

I wanted to do something to show my thanks. When the opportunity came up to run the half marathon to raise money for the Cancer Immunology Fund it seemed like an obvious thing to do: because I know what it's like to go through cancer treatment, because I want to do what I can to help improve the treatments and the chances of people surviving the disease.

When I finished my treatment in the summer of 2018 I could barely walk. I couldn't even run a kilometre. I gradually built it up. I did the NHS couch to 5K and then pushed a little bit further and a little bit further. I managed to finish this half marathon in about 2 hours and 5 minutes, and I was so pleased with that time."

"I got the best possible care I could possibly ask for by ending up in Southampton."

Dr Huw Jones,
Lecturer in Film Studies

WHY I GIVE

"I was introduced to the Cancer Immunology Fund at a dinner in Guernsey following completion of the construction of the Centre, which was funded significantly by donations from the Channel Islands. I had previously been treated for advanced prostate cancer in Guernsey. There has always been a close connection between the Channel Islands and Southampton General Hospital, where considerable numbers of patients receive treatments not available in the Islands owing to the size of our hospitals. This, in turn, has led to the strength of the bond between the Islands and Southampton University.

When I was a child growing up, I remember people either mouthing the word cancer or calling it 'the big C' because it was viewed as a death sentence. After my experience of the treatment of my own cancer some 60 years later, it is clear that advances have been made in the earlier diagnosis of cancers and their treatments. The opportunity for future advances are a real possibility and Cancer Immunology opens up an exciting chance to further the study and treatment of the disease.

I came from a poor background but was lucky to be offered a place at a Grammar School. As a result, opportunities became available to me throughout my adult life and I am pleased that my family and I have been able to make a number of significant gifts to support this research. By involving my children, I hope to educate them both that philanthropy is good and the morally right thing to do in their lives.

I am currently receiving treatment for esophageal cancer and the trustees of one of the organisations I have worked with over the years have voted a donation of £50,000 to the charity of my choice in recognition of my services. Needless to say I have requested the money goes to the Cancer Immunology Fund!"

John
Cancer Immunology Fund donor

HELPING TO KICKSTART THE ARTS

Thanks to significant funding from Arts Council England, the University's John Hansard Gallery (JHG) has launched the Co-Creating the Public Realm project, which invites communities from Southampton to develop major art commissions, created in conjunction with leading international artists. These new public artworks will be launched as part of major festivals and community celebrations in Southampton and beyond.

This project, which started in April 2022, will run over two years, and involve local and international artists, including Mary Evans, Oozing Gloop and NewfrontEars, Rich Holland and Grace Lau. These artists will work in partnership with multiple community groups and organisations, including Art Asia and Southampton Mela, The Mela Partnership, Black History Month South, Chinese Arts Southampton, Chinese Association of Southampton, Confucius Institute, Kingston Creative Jamaica, Skate Southampton, Southampton Black Archives, Southampton Pride, SPUD, The Stage Door, UP Projects, and videoclub.

Co-Creating the Public Realm aims to empower communities to reimagine how public space is used in their cities. In addition to five significant public art commissions, Southampton will host a national conference about public art and co-develop a new public art strategy for the city. Co-Creating the Public Realm will explore new thoughts around creativity and public space in relation to gender, ethnicity, sexuality, age, ability, access, health and wellbeing.

Co-Creating the Public Realm will support artists, producers and the cultural sector in Southampton, the South West and nationally, bolstering the city's social and creative recovery following COVID-19.

A number of new roles and artist opportunities will be created as a result of this project that will be led by JHG, in collaboration with UP Projects and Visual Arts South West.

This funding has allowed JHG to deliver a key part of the city's ambition to become a social and cultural powerhouse. Co-Creating the Public Realm will nurture creative and cultural communities, building skills, capacity and participation.

A BRIEF HISTORY OF GIVING

The University of Southampton was founded on a gift, and philanthropy and volunteering have continued to shape our university throughout our history. As the University celebrates its 70th anniversary, we look back at the impact of philanthropy on our estate and in the lives of our students.

"The Wolfson Foundation aims to promote excellence in research and education as we believe that sharing and creating new knowledge is essential to a healthy, resilient and creative society. We've been supporting remarkable work at the University of Southampton for over 50 years. This reflects both the quality of research at Southampton and also the value that we place on long-term relationships as organisations develop and evolve to meet new circumstances. Our funding has ranged from major infrastructure projects - like the Centre for Cancer Immunology or the Matched Refractive Index Facility - to support for talented people through postgraduate scholarships and research fellowships. But whatever the nature of the funding, we know support for Southampton is also support in tackling the greatest challenges of the contemporary world."

Paul Ramsbottom OBE
Chief Executive at The Wolfson Foundation

Accommodation - Glen Eyre Complex

The Glen Eyre complex is the University's biggest student accommodation community. It was established as a result of a donation of £100,000 by Charlotte and Mary Chamberlain to create a new Chamberlain hall.

Students' Union (Building 42)

The main reception area of Building 42 was completely remodelled in the summer of 2011 to bring it up to date and make sure it met the needs of our burgeoning student population. This work was funded by alumni and supporter contributions to the Student Experience Fund.

Valley Gardens

The Valley Gardens were founded on a philanthropic gift in 1951 after a £200 donation from Miss Trout from Mathematics. The gardens were planted up in the 1960s with specimen plants by the Department of Biology but later fell into disuse.

In March 2012 the newly refurbished Valley Gardens were re-opened, following a four-year project to return the 'secret' Gardens to their original glory after the years of neglect. The refurbishment was largely funded by donations from supporters, including Philip Osborn, who funded the vehicular bridge in memory of his wife Hazel. These donations have provided a peaceful haven for students and staff in the intervening years.

Southampton General Hospital

The University's new £25 million Centre for Cancer Immunology is based at the hospital site, having opened in 2018. This is the first centre of its kind in the UK and the first building funded solely through philanthropy at the University of Southampton.

Also based on the hospital site, the Developmental Origins of Health and Disease (DOHaD) building was supported by the Garfield Western Foundation, the Wolfson Foundation and the Henry Smith Charity.

Avenue Campus (Building 65)

The Parkes Institute for Jewish/non-Jewish relations is based on the Avenue campus and is supported by alumni and donors, who have helped the University to house and maintain the Parkes Archive, a world class collection of texts and correspondence from the library of Revd Dr James Parkes. The Institute continues to be supported by many generous donors including the Ian Karten Charitable Trust, who fund several scholarships and outreach work on Jewish/non-Jewish relations within the local community.

The £3 million archaeology building also on the Avenue campus site was partially funded by donations from alumni, helping us to remain an internationally recognised leader in the field.

Life Sciences Building (Building 85)

The Life Sciences Building was opened in 2010, providing state-of-the-art laboratory, office and teaching space for staff and students from the Schools of Biological Sciences. The building provides an integrated research base where staff and students can work with scientists and engineers from other areas within the University. The funds for the building's construction included major contributions from several donors including Chris Marsden and the Wolfson Foundation.

The greenhouses on top of the building were funded by Malcolm and Jill Isaac, whose gift of £800,000 was the largest gift made by an individual to the University at the time.

Student Services Centre (Building 37)

The Student Services building was opened in 1969 and is the hub for all the University's student support activities, including the Careers department, who administer the Student Excellence Fund. This fund is generously supported by members of our alumni and supporter community and has made lasting differences for many students looking to kickstart their careers.

Our e-mentoring operations are also based here. Many of our alumni generously volunteer their time to provide careers advice for students through our online portal, which connects students and alumni from anywhere in the world to share knowledge and professional advice as well as opportunities to network and find jobs, internships and events.

Institute for Sound and Vibration Research (Building 15)

One of the University's world-leading research centres, the ISVR's state-of-the-art facilities were built with the support of the late Sir Michael Cobham, who made over £1 million in cumulative gifts throughout the 1990s and 2000s. It has been refurbished in 2022 thanks to a generous legacy gift from John Gozzard (see p16)

The Institute is housed in the Wolfson/ Rayleigh Building, one of several buildings funded over the years by the Wolfson Foundation.

Accommodation - Wessex Lane Complex

Mrs Montefiore, the wife of Claude Montefiore who was the president of the college, bought and gave to the college a piece of land opposite South Stoneham House for a playing field. Montefiore House (often referred to as 'Monte') was built on those grounds and opened in 1966 as a hall of residence.

Hartley Library (Building 12)

Donations to support the Hartley Library have provided much-needed additional resources, the digitisation of significant collections and improved facilities for quiet study space.

Funded by philanthropy, the Library Access and Discovery System allows library users to easily navigate all library resources through one single search facility.

A state-of-the-art student lab was created through funding from the Student Centredness Fund and alumni contributions.

Thanks to generous gifts from the National Heritage Memorial Fund, trusts, foundations and individual donors, the University was able to secure the Broadlands Archives for the nation. This important collection of historical documents cover major political, diplomatic, social and economic events of the 19th and 20th centuries

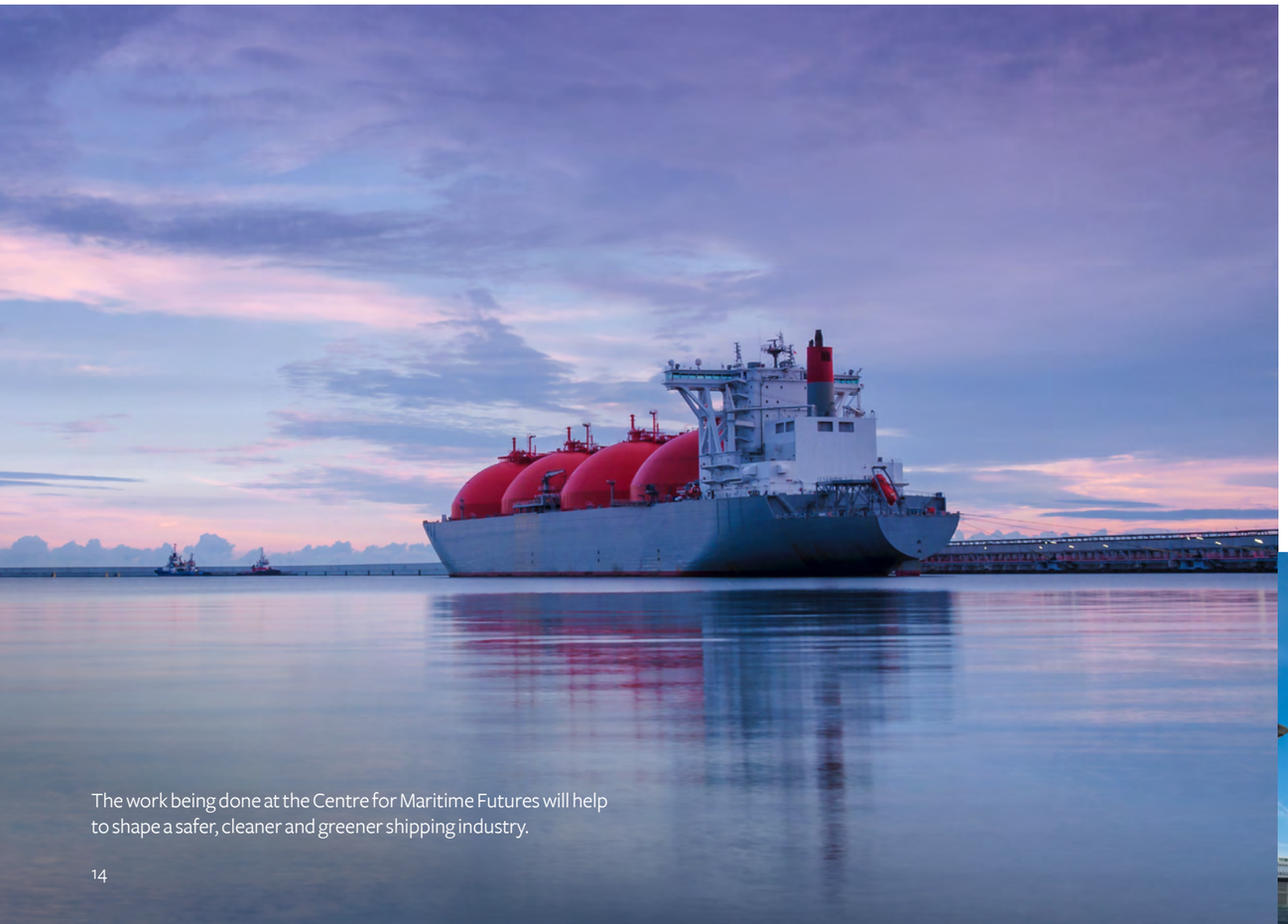
SHAPING THE FUTURE OF SHIPPING

In September 2019, Shell gifted the University £1.5m to establish the Centre for Maritime Futures. The Centre brings together university and industry partners to transform the energy shipping industry to be safer, cleaner and more efficient.

In this third year of the project, the Centre has made dramatic progress in research and technological innovation, building a pipeline of talented innovators and leaders, nurturing industrial and stakeholder relationships and encouraging interdisciplinary collaboration.

A multidisciplinary team of Southampton researchers has been working on three projects from the Department of Transport's Clean Maritime Demonstrator Competition (CMDC) to accelerate the decarbonisation of the maritime industries. These initial projects concluded in March of this year and have delivered workable next steps to bring the shipping industry closer to net zero.

In the third year of the project, the Centre has made dramatic progress in **research and technological innovation**.



The work being done at the Centre for Maritime Futures will help to shape a safer, cleaner and greener shipping industry.

Cleaning up cruise ships

Cruise ships are floating cities and have major base-power requirements both at sea and in-port. Known as the 'hotel'-load, this vital function produces electricity for all the non-propulsion requirements including heating, ventilation, airconditioning, and waste processing. However, powering these demands emits pollutants, particularly over port towns and cities when the ships are docked.

The team has made significant progress in assessing the feasibility of using cleaner solid-oxide fuel cells as alternatives to hydrocarbon-fuelled generators.

Developing alternative fuel solutions

Researchers at the Centre are also developing a fully electric, zero-emissions system to be implemented on uncrewed ships. The initial concept for the system is based on using ammonia as a fuel, to be 'cracked' to Hydrogen and then purified for use in a protonexchange membrane (PEM) hydrogen fuel cell to generate electricity. This Ammonia-Marine-Propulsion technology has the potential to be part of a zerocarbon coastal-highway for the UK.

The Southampton team has developed a fully instrumented, model-scale container ship to assess power demand when operating in waves. This was subjected to a programme of tests at the University's towing tank and the ISVR. Motions measured from the model tests are being used for the testing of a proxy fuel-cell system and a small methanol fuel cell.

Protecting the marine environment

The Southampton team is collaborating with start-up Acua Ocean and is focused on long-endurance, liquid-hydrogenpowered, uncrewed, guard vessels to monitor and protect the marine environment. Acua's Chief Operating Officer Mike Tinmouth is a Southampton alumnus. Acua's project is testing the feasibility of their patent-pending technology designs with scaled models in the University's towing tank. Additionally, computational fluid dynamics modelling and practical component testing for elements of the PEM fuel cell system are contributing to help determine if this technology could provide a cost-effective route to small autonomous vessels.

Boldrewood Innovation Campus

Artificial intelligence and digitalisation

A digitalisation project aimed at reducing carbon emissions, as well as optimising trading techniques, shipping methods and vessel upgrades, has reached a major milestone. The team has built an artificial intelligence-driven simulation platform to study future carbon taxation scenarios and to optimise Shell shipping's strategy to achieve net zero.

The Digital Twin Simulator Interface has now been built using a range of artificial intelligence (AI) and machine learning solutions, and the technology is being implemented using data from across the shipping sector to assess its capabilities and potential application.

Professor Gopal Ramchurn and Dr Enrico Gerding and their team have developed the Digital Twin dashboard to analyse the impact of potential carbon tax regimes and provide insights and possible solutions to reduce CO_2 shipping emissions.

Gopal said: "The platform can help reduce carbon emissions in the shipping sector by significant amounts. But it also has the potential to be used across multiple applications. It can help vessel operators and planners transition their fleet to meet Net Zero, improve their shipping methods, and optimise their trade over the next 20 years."

Thanks to Shell's generous donation, our researchers have been able to pioneer new solutions for decarbonisation, helping the shipping industry to become greener, cleaner and more sustainable. Together, we are building a better future for the marine industries.

INSPIRING THE NEXT GENERATION OF STUDENTS

5,913
volunteering hours logged this year

2,271
volunteers supported 60 separate volunteering activities this year

DEGREES TO SAVE THE WORLD

In 2022, seventeen of our amazing alumni donated their time to speak with prospective students about their inspiring career journeys, in a webinar series titled *Degrees to Save the World*.

Over the course of nine webinars, our volunteers tackled some of the most pressing issues facing our world today, from climate change, to creating sustainable communities, to building fairer societies for everyone. Attendees heard from alumni who studied a vast range of different courses at the University, all of whom are changing the world for the better through their work since graduation.

Each hour-long webinar focused on the impact our alumni are having within a specific area or sector, and was hosted by a current student from the University, who interviewed our alumni volunteers about their time at university, their current roles, and the path they took to get to where they are now.

After attending the webinars, 68% of prospective students said they felt more positive about the University of Southampton, with 21% saying they would definitely apply and 64% saying that they now wanted to visit the University in person at an open day or other event. Our volunteers were able to demonstrate the benefits of a Southampton education and inspire these young people to consider the University more seriously as they plan their own futures.

As well as showing prospective students the myriad ways a Southampton degree can be the path to a rewarding career, the webinars gave current students the opportunity to gain presenting experience and develop their interviewing skills. The webinars also helped these student volunteers to picture their own futures as they approach graduation. Student host Frey Patten said: "I think it's inspiring to know that other people have gone before me with the same experiences and opportunities that I'm having now, building relationships with their classmates and their lecturers and each one of them now has their own story. I feel like I'm part of something amazing."

This is just one of the ways our dedicated volunteers have helped to inspire the next generation, raise the profile of the University, and help our students to plan their futures.

SOME OF THE WAYS OUR ALUMNI VOLUNTEERS ARE SAVING THE WORLD

- Developing clean energy solutions
- Raising awareness of protected species through wildlife photography
- Promoting community conservation
- Producing more sustainable insect-based animal feed
- Ensuring access to birth registration for children around the world
- Supporting new businesses in the developing world
- Advocating for action on climate change
- Increasing access to clean cooking solutions
- Designing sustainable fashion
- Using data to inform conservation efforts
- Developing ocean science solutions for sustainable development

ENSURING THE FUTURE OF SOUND ENGINEERING

In 2020, the University received a generous legacy gift of £500,000 from John Gozzard, an inventor and engineer whose work continues to lead the way for audio professionals today. His legacy has funded a complete transformation of facilities at the Institute of Sound and Vibration Research (ISVR). The new facilities, which were unveiled in June, will give a major boost to teaching and research at Southampton.

John Gozzard is known for his design of the zeppelin-shaped windshield for microphones, which minimises interference from unwanted sounds such as wind and is used on film and television sets. John had stipulated that part of his estate should be used for the furtherance of research and training in sound engineering. As such, the pioneering work in noise reduction and anti-noise technology carried out by the ISVR was a natural fit.

His gift has enabled the University to fully refurbish the anechoic (echo-free) chamber and upgrade teaching laboratories with state-of-the-art computer workstations for students. The ISVR's anechoic chamber is one of the largest in the country and was last renovated in 1996. The installation of cutting-edge materials will enable students and researchers to develop new and exciting solutions to noise and vibration issues, from improving cochlear implants for people with severe deafness, to leading the way in aircraft noise reduction.

This legacy will not only boost essential research, but also provide opportunities for students at Southampton to become tomorrow's leaders in the field of sound and vibration.

Dr Stefan Bleeck, Head of the ISVR, says: "We are delighted to receive this generous donation which will enable the next generation of audiologists and engineers to benefit from the highest quality facilities at Southampton.

"Everyone will benefit from this; students who do research projects, researchers investigating how to make environmental noise quieter and industrial partners conducting projects from all over the country.

Richard Bryant, one of the Executors of John Gozzard's estate, adds: "John was an interesting and intelligent man, who had a true passion for sound engineering and inventing new products. We are delighted to support the ISVR and its students from John's legacy, which is a fitting tribute to John's life and work."

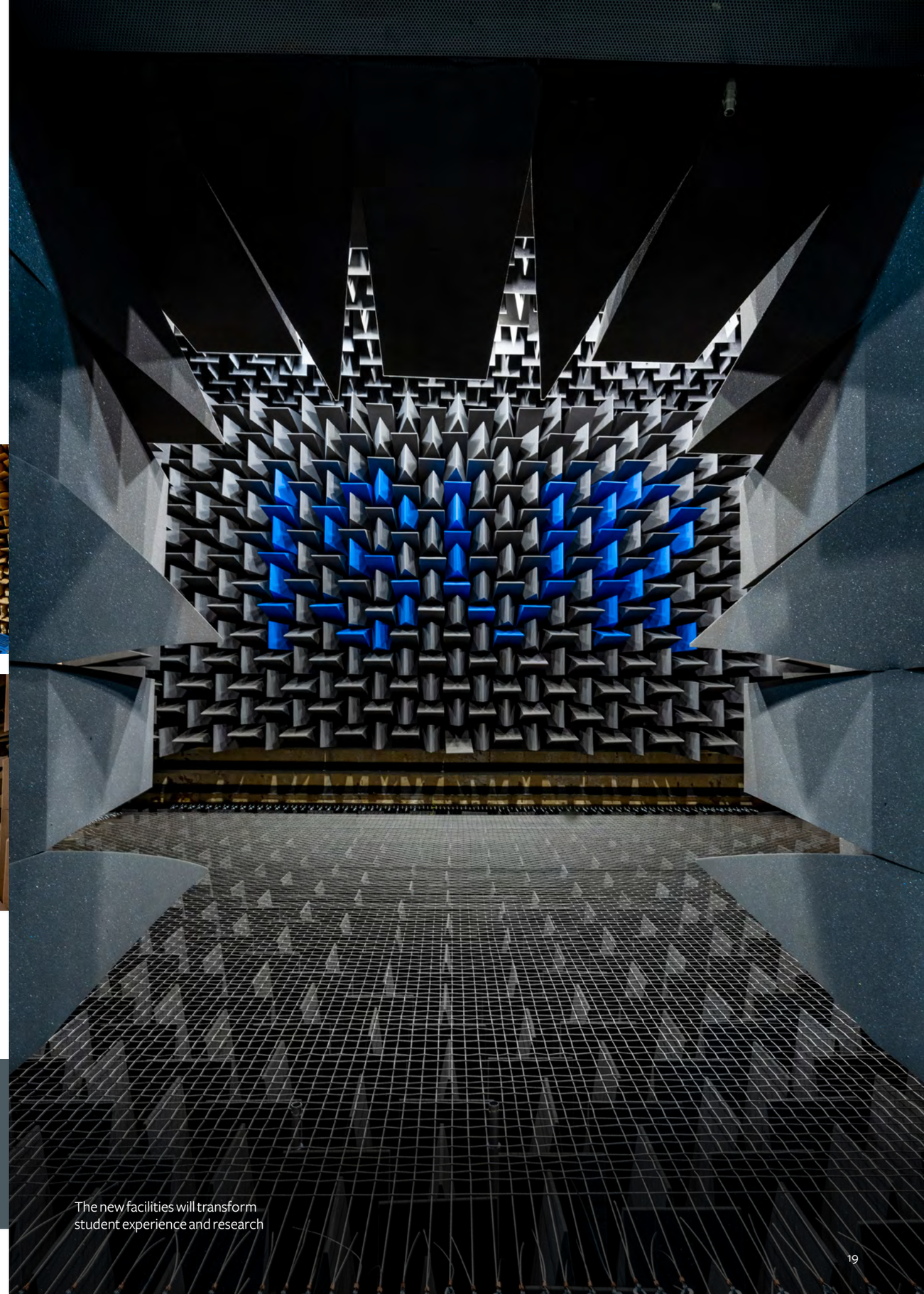
By leaving a gift in his will, John has transformed sound and vibration facilities at Southampton, propelling this research to new heights and inspiring the next generation.

The anechoic chamber was last renovated in the 1990s

Have you thought about leaving a gift in your will to the University of Southampton?

If you've been inspired by the potential of legacy giving, we invite you to get in touch. Whatever stage you're at with considering a gift in your will, if you'd like to talk please contact Jenny Miller, our Legacy Officer, at **Jenny.Miller@southampton.ac.uk** or on **+44 23 8059 4072.**

In the meantime, find out more about leaving a gift in your will: **www.southampton.ac.uk/legacy**



The new facilities will transform student experience and research

FUNDING THE NEXT GENERATION OF EYE DISEASE EXPERTS

Sarah Macdonald

For nearly three decades, Gift of Sight has been supporting world-class research into the prevention and treatment of blindness undertaken at the University of Southampton.

Entirely funded through generous philanthropy, Gift of Sight also supports the University in nurturing new talent in the laboratory.

Researchers Sarah Macdonald and Catherine Robertson are two of the next generation of Southampton's eye disease experts, currently undertaking their PhDs at Southampton. Both were recruited to the research team following receipt of a generous legacy donation to Gift of Sight.

Sarah's story

Sarah is coming to the end of the first year of her three-year PhD investigating new treatments for children who have albinism.

Albinism affects the production of melanin, the pigment that colours skin, hair and eyes. It's a lifelong condition and the reduced amount of melanin can cause eye problems. This is because melanin is involved in the development of the retina, the thin layer of cells at the back of the eye.

However, there is hope. A child's eyes continue to develop during the first 18 months of their life and previous research at the University of Southampton showed that L-DOPA, a drug that is usually used to treat Parkinson's Disease, could alter eye development if it was given at this critical time.

Sarah's PhD is expanding this research and analysing how the structure of the eye – in particular the synapses around the retina – changes once the drug has been given at either a low, medium or high dose.

Excitingly Sarah can already see an impact. "It's wonderful to start seeing the data come through," she said. "I can see real differences in the samples – we now need to analyse these data to understand what they mean and how we can use them for the benefit of patients.

> "It's important to me to get those results – I'm amazed at the generosity that someone has given a donation to fund me for three years and I want to make sure that donation makes an impact and helps as many people as possible."

With a background in genetics and neuroscience and an interest in rare human genetic disorders, the project into childhood albinism was an opportunity Sarah could not pass up.

"It was really important to me to do a project that would have a positive impact on people's lives," she added. "Even if it needs someone to continue it after my PhD has finished and even somebody after that. To help with the foundation of that knowledge and understanding of a rare disease is very exciting."

Catherine Robertson

Catherine's story

In last year's Giving Report, we told you about the amazing gift that funded the new Human Stem Cell Laboratory, which is helping our early career researchers to expand their human stem cell projects.

Catherine Robertson is one of those researchers. In April 2022, she started her PhD, which aims to provide a better understanding into the cone cells within the eye.

Responsible for your sense of sight, cones cells are the receptors in the retina and convert the light that enters your eye into electrical signals that can be decoded by the vision-processing centre of the brain.

Cone-rod dystrophy (CRD) is a group of inherited eye disorders that affect the cone cells and lead to vision loss over time. There are over 30 types of CRD caused by genetic changes in several different genes that can be inherited in many ways.

Catherine's research is investigating the role of the gene GNGT2 in the development of cone cells and how they absorb light.

Catherine explained: "Around one in 4,000 people are effected by CRD and experience debilitating sight loss having a marked effect on their quality of life. My project is using human stem cell derived organoids to model the retinal developmental process, to identify the genes that influence cone cells. This could help us find a potential target for treatment."

Speaking about the impact of philanthropy, she added: "I'm incredibly grateful for the support people have shown this project - knowing that the money has been donated brings an extra sense of commitment and has encouraged me to give back. I know other members of our team have raised money for Gift of Sight through running events, and that's something I would like to get involved in too. I'm very proud to be part of the team here in Southampton."

Find out more about Gift of Sight:
www.giftofsight.org.uk

The gift from the Honor Frost Foundation will boost Southampton's maritime archaeology research

FUNDING RESEARCH EXCELLENCE

Two major gifts received this year will supercharge research in some of Southampton's specialist areas.

A gift of almost £1m from the Honor Frost Foundation will support the creation of the Honor Frost Associate Professorship in Mediterranean Maritime Archaeology, helping to advance our knowledge of underwater archaeology in the region. Research in the Mediterranean is particularly crucial due to its historical significance for connectivity by sea, which stretches back at least as far back as the Neolithic era, some ten thousand years ago. Boats, seafaring and maritime exchange were critical to the development of this region through the Greek and Roman civilisations and beyond.

Alistair Pike, Deputy Head of the Archaeology Department said, "This generous donation from the Honor Frost Foundation represents an exciting opportunity to expand our research in the maritime archaeology of the eastern Mediterranean, and to ensure that Mediterranean maritime archaeology continues to be a world-renowned strength within Archaeology at Southampton for many years to come."

£1m

A gift of almost £1m from the Honor Frost Foundation will support the creation of the Honor Frost Associate Professorship in Mediterranean Maritime Archaeology

A transformative gift from Eugene Jhong will fund major research in physics

The University has also received an exceptional gift from alumnus Eugene Jhong, which will fund a new Physics experiment aiming to reach a breakthrough in the unification of quantum theory and general relativity.

Led by Professor Fuentes Guridi and her team, along with the 2020 Nobel Prize winner for Physics, Sir Roger Penrose, they will launch a new experiment: 'Observing Gravity Induced State Reduction—Bose Einstein Condensate.' Professor Fuentes Guridi's pioneering work at the overlap of quantum technologies and relativity is unique globally and this gift could unlock a new and exciting understanding of physics.

"Thank you for your support over the past year. As I hope you can see from this report, it has enabled us to achieve some remarkable things: funding vital research, improving the lives of our students and delivering life-changing outcomes for patients. We are so grateful to you."

Joanne Donahoe,
Director of the Office of Development and Alumni Relations

SUPER-CHARGING STUDENT ENTERPRISE

The University's Founderships programme supports students to develop and launch their own business ideas. Funded by donations, the programme has helped many students to take their first steps as entrepreneurs, and given them the confidence to make their business dreams a reality.

Tiffany, a Master's student at Southampton, gave birth to her first daughter in 2020, and struggled with her mental and physical health in the aftermath of a difficult pregnancy, the isolation of lockdown and going through the challenges of first-time motherhood with a reduced support system.

At a low point, Tiffany enrolled in a baby massage course and found it offered a renewed connection with her daughter and a way to relax. Tiffany's sensitive skin made it hard to find oils that she could use for this valuable bonding time with her baby, and so the idea for an all-natural aromatherapy and massage oil company, Nascenti, was born.

"My daughter was just over a year old when I started Nascenti and embarked on the Foundership Scheme. I was writing my Masters thesis at the time and had limited resources.

The Foundership allowed me to pay for childcare whilst I made my prototypes and sent them off for testing, and also provided me a space to work on Nascenti at the Network Eagle Labs co-working space in Southampton. I met other entrepeneurs and mentors on the scheme who gave me invaluable insight into business and start-ups. I am still in contact with my Foundership Cohort and it's fantastic to have that ongoing support.

The Foundership gave me the time, resources and confidence to work on my idea. Having the support of the University was monumental for me. I honestly cannot thank the donors enough for supporting the Foundership: it is such a great opportunity for students to develop ideas which can go on to make a positive impact on the world."

Find out more:
giving.southampton.ac.uk

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